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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,244	11/28/2001	Daniel Richard Schaefer	594826-001	3771

27805 7590 12/12/2003

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EXAMINER	
BEHREND, HARVEY E	
ART UNIT	**PAPER NUMBER**
3641	

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/996244	Schaefer et al
Examiner	**Group Art Unit**
Behrend	3641

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☒ Responsive to communication(s) filed on 8/18/03.

☒ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disp sition of Claims

☒ Claim(s) 1-8, 10-14, 16-19, 29-34 is/are pending in the application.

Of the above claim(s) 30-32 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-8, 10-14, 16-19, 29, 33, 34 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____.

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of References Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4-8, 10-14, 16-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are directed to a fullerene molecule per se, however, it is not clear from the claim language exactly what is being claimed and, the metes and bounds of the claims are thus undefined.

It is noted that applicant on page 3 of the 10/30/02 response as well as on page 6 of the 7/18/96 response in parent case SN 08/376846, for example, indicates that no

utility is being claimed in these claims and thus, these claims appear redundant to claims 1-3.

Further rendering this confusing is that claims such as claim 13 appears to be specifically directed to a method of use or of what takes place after a specific event occurs.

Claim 4 is so poorly phrased and with such incorrect grammar that it is essentially meaningless.

Applicants' arguments are unpersuasive of any error.

The claims in question are directed to a fullerene molecule per se.

The examiner does not agree that the claims merely recite a property of the fullerene molecule.

Instead, the claims refer to uses of the fullerene molecule or, of doing something to the fullerene molecule.

For example, claim 5 refers to providing the fullerene molecule with an electrical charge.

Claim 7 recites that the fullerene molecule is useful as an irradiation target for bombardment by other particles.

Such "uses" clearly cannot be considered as inherent properties or characteristics of the fullerene molecule.

Note that a claim is indefinite if it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

4. Claims 1-8, 10-14, 16-19, 29, 33, 34 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, for the reasons set forth in section 5 of the 2/12/03 office action.

Applicants' arguments are unpersuasive of any error.

Note that one cannot rely on the Remarks section of an amendment to provide subject matter that the specification itself must recite for completeness. Additionally, an applicant must provide copies of any documents relied on so that they can be appropriately reviewed by the office.

The statute requires an applicant to provide a disclosure sufficient to enable one of ordinary skill in the art, to make and/or use the invention.

Applicant is relying on his disclosed example or experiment as evidence that the disclosure as filed is sufficient to enable one to produce a fullerene molecule having one or more free thermal neutrons trapped therein.

Thus, the issue of experimental errors, misinterpretation of experimental results, etc., is clearly pertinent in determining patentability of applicants invention and cannot be lightly dismissed.

There is no reputable evidence now of record to support applicants argument that the neutron's own magnetic field will keep it in the center or cavity of a fullerene molecule to avoid capture by carbon nuclei (e.g. see pages 11-14 of the 8/18/03 response). There is also no reputable evidence of record to support applicants

"postulate" (page 7 of the 8/18/03 response) that the "electron cloud" of a fullerene molecule may produce a repulsive magnetic field that can trap neutrons within the interior cavity of the fullerene molecule.

As set forth in the 2/12/03 office action, there is no disclosure of what causes a neutron from the beam (or flux) of irradiating thermal neutrons, to penetrate only one wall of the fullerene and to not penetrate, contact, be absorbed in, etc., the opposite wall of the fullerene, such that it will remain trapped inside the fullerene as a free thermal neutron (there is also no disclosure of how and in what manner it is determined that such actually takes place as alleged in the specification), nor is there any disclosure of how and in what manner, one can positively determine that the thermal neutron is actually trapped inside the fullerene as a free thermal neutron rather than being reflected among the carbon atoms present in the fullerene sample.

Applicants in the paragraph bridging pages 19, 20 of the 8/18/03 response, argue that they spent three years to develop fullerene samples that were pure enough to permit their experiments, that the net effect of excessive impurities is a negative result and that their experiments only became successful after their suppliers developed processes that produced high purity (undefined) fullerenes (see also for example, the underlined portions on page 27 of the 8/18/03 response) (it is noted that applicant has not provided a date as to when their suppliers developed these processes to produce high purity fullerenes).

However, neither applicants specification nor claims recite this now indicated critical parameter of " high purity" (undefined) fullerenes!

Instead, the specification indicates one can successfully utilize "commercially available" fullerenes (e.g. see the specification on page 4 lines 24-27).

Since the claims do not recite this feature of high or highest purity fullerene molecules, which applicant now states to be critical and/or essential to make and /or use the invention , the claims are not enabled by the disclosure (See In re Mayhew 188USPQ356).

As indicated by the examiner on page 6 of the 2/12/03 office action, Braun et al in the second column on page 443 state that commercial fullerenes contain non-negligible amounts of impurity elements which can be made radioactive (activated) by neutron irradiation all of which can lead to erroneous results.

In this same vein, as indicated by the examiner on pages 6 and 7 of the 2/12/03 Office action:

> "In further regard to this issue of impurities and/or contaminants, it is noted that applicants in part (d) on page 6 of the brief in parent case 08/376846, state that in their experiments, the contaminants varied from sample to sample and, sometimes from test to test of the same sample! Such additionally makes it appear that the "sample" could become contaminated at any point during the experimental procedure and, thus, also introduce errors.
> If the experimental procedures are such that contaminants can be so introduced (particularly from test to test of the same sample), any conclusions drawn from these experiments would be suspect." (Underlining in the original).

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harvey Behrend whose telephone number is (703) 305-1831. The examiner can normally be reached on Tuesday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone, can be reached on (703) 306-4198. The fax phone number for the organization where this application or proceeding is assigned is (703) 306-4195.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

HARVEY E. BEHREND
PRIMARY EXAMINER

Behrend/vs
November 17, 2003